

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.:	09/855,385	Confirmation No.:	8937
Applicant(s):	Dorenbosch, Jheroen P., et al.	Examiner:	Mehrpour, Naghmeh
Filed:	May 15, 2001	Docket No.:	PF02177NA
TC/A.U.:	2617	Customer No.:	20280
Title:	INSTANT MESSAGE PROXY FOR CIRCUIT SWITCHED MOBILE ENVIRONMENT		

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 C.F.R. § 1.131**

Sir:

The following Declaration and any attachments are to establish conception in the United States of claimed subject matter in the referenced patent application and diligence to the filing of the referenced patent application on May 15, 2001, from a date prior to the effective date of U.S. Patent Application Publication No. US2002/0147988A1 to Masahiro Nakano, filed in the United States on April 9, 2001, and relied upon by the Examiner to support rejections under 35 U.S.C. 103(a) in the Office Action dated July 11, 2006.

In support of this declaration, we, Jheroen P. Dorenbosch of Paradise, Texas, and Kevin C. Mowry of Irving, Texas, declare and sayeth the following:

That we conceived the claimed subject matter of the referenced patent application in the United States before April 9, 2001, which is prior to the effective date of United States Patent Publication No. US2002/0147988A1 (Nakano), in the course of employment by Motorola Inc., the assignee of the instant application by virtue of an assignment duly recorded on the Official record of the United States Patent & Trademark Office, REEL/FRAME 011815/0457.

That the claimed subject matters of the referenced patent application were the subjects of written invention disclosures prepared and executed after conception on October 24, 2000; October 27, 2000; and December 5, 2000; and that the invention disclosures were subsequently submitted to a Patent Committee of Motorola Inc., the assignee of record for consideration and assignment to a patent attorney for preparation and filing of a patent application.

That each of the dates redacted from the disclosure attached hereto is prior to the effective dates of United States Patent Publication No. US2002/0147988A1 (Nakano).

That on information and belief a patent application was prepared and filed, in due course upon, in the United States Patent Office on May 15, 2001, by or on behalf of Motorola Inc.

That all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

JHEROEN P. DORENBOSCH

DATE 10/18/06

STATE OF Texas

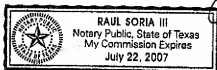
SS:

COUNTY OF Tarrant

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Jheroen P. Dorenbosch whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this 18 day of October, 2006.

My commission expires: July 22, 2007



Raul Soria III  
Notary Public Signature

RAUL SORIA III  
Printed Name of Notary Public

Kevin C. Mowry

DATE

STATE OF )

SS:

COUNTY OF )

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Kevin C. Mowry whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

My commission expires:

\_\_\_\_\_  
Notary Public Signature

\_\_\_\_\_  
Printed Name of Notary Public

**MOTOROLA**FIGHT  
WORTH**Utility Patent Disclosure****UTILITY Disclosure For Patent  
Committee Review**Submitted Pursuant To  
Employment Agreement

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only

Disc. #

Disc. Date

Committee

Action

PF 2177/07  
10-25-00**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

1. Name of Invention: Store and forward mechanism for Instant Messaging
2. Documentation Date: Oct 24, 2000  
(Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?  
Name: xxx Date: xxx
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No NO  
If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)  
IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?
6. Identify related technology. (Attach additional sheets if necessary.)  
Email is the extreme case, in which clients log in and "pull" messages.
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.  
See attached.

**THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER**

1. Product invention is to be used on. (If a process, name the 1<sup>st</sup> product the process is to be used on.) n/a
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No NO If YES, indicate the earliest date any of these will (have) occur(red). xxx

3. This invention is to be (has been) disclosed outside Motorola: Yes/No NO  
If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:

Typed: xxx Steven E. Trine (817) 345-2576

Phone: xxx Signature: *Steven E. Trine*

Date: 10/24/2000

ALL TABLES MUST BE COMPLETED AND ALL ADDITIONAL SHEETS MUST BE SIGNED &amp; DATED BY ALL INVENTORS AND TWO WITNESSES

**MOTOROLA**FORT  
WORTH

## Utility Patent Disclosure

Primary Inventor:**Mowyr** *Mowry*  
Last Name:**Kevin**

First Name:

**Curtis**

Middle Name:

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**519-08-8038**

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Code:

**S147**

MailStop:

**A**

Shift: Status:

Employee

**Dwight Smith**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

*10/24/00*Inventor:**xxx**

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INVENTOR'S FULL SIGNATURE

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Inventor:**xxx**

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Home Address: Street;

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Shift: Status:

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Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

**WITNESS NAMES & SIGNATURES:****The witnesses, in signing this form, attest to the fact that they understand the invention.**

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

*W. Garland Phillips**52388**W. Garland Phillips**10/24/00*

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

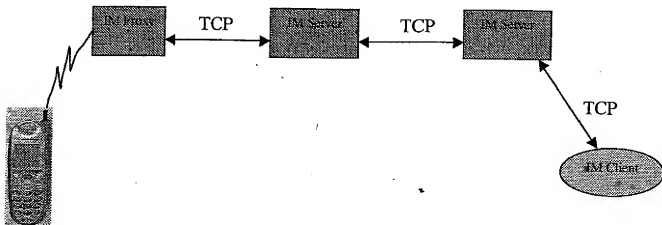
*SOELEN THOLESEN**5-1716**Soelen Tholosen**10/24/00*

**MOTOROLA**FORT  
WORTH**Utility Patent Disclosure****Problem Description**

IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?

**Proposed Solution**

The IM Proxy registers with an IM server on behalf of a mobile client. It receives instant messages and sends them over the air to the mobile client. Instant messages sent from the mobile client go through the IM proxy to the recipient.



The IM Proxy maintains the client's availability status. That is, when the user starts the IM client, the proxy reflects the AVAILABLE status. When the user manually changes status, e.g. to OFFLINE, the proxy reflects that. The user's buddies use the client status to determine if the user can participate in a chat session.

The proxy will not know if the client is roaming or out of service, because the client will not have the opportunity to register a change in status with the proxy before dropping out of service. In this case, the proxy will only know the client is offline when an instant message comes in and the proxy tries to send that message to the mobile client.

Normal IM behavior would suggest that the message be dropped in this scenario, however the mobile client may simply be going in and out of service because the user is driving down the freeway. A preferred behavior would be for the proxy to resend the message a programmable number of times before dropping the message. After dropping a programmable number of messages, the proxy should automatically change the client status to OFFLINE so the user's buddies will know the user is no longer receiving messages.

The number of retries would likely be based on system latency. The number of dropped messages (used to determine an automatic status change) would probably be provisioned for each user, or class of users, based on network reliability, location, usage habits, etc.

*K. S.* 10/24/00  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_

Signatures

*W. W. A.* 10/24/00  
 Witness \_\_\_\_\_ Date \_\_\_\_\_  
*Steven Thomas* 10/24/00  
 Witness \_\_\_\_\_ Date \_\_\_\_\_

**MOTOROLA**

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Utility Patent Disclosure

UTILITY Disclosure For Patent

Committee Review

Submitted Pursuant To  
Employment Agreement



Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only	
Disc. #	
Disc. Date	PF 2181NA
Committee Action	10-30-00

**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

1. Name of Invention: Message bundling to optimize IM in circuit switched environment
2. Documentation Date: Oct 27, 2000  
(Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?  
Name: Soeren Thomsen Date: Oct 26, 2000
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No No  
If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)  
In a circuit switched cellular network, the mobile IM client must establish a connection with the IM server (or proxy) to send and receive messages. It is cost prohibitive to maintain an open connection for the duration of the IM chat. A mechanism is needed to optimize message retrieval for a circuit switch network such that a connection is established only when messages are available for retrieval.
6. Identify related technology. (Attach additional sheets if necessary.)  
xxx
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.  
See attached.

**THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER**

1. Product invention is to be used on. (If a process, name the 1<sup>st</sup> product the process is to be used on.) xxx
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No xxx If YES, indicate the earliest date any of these will (have) occur(red). xxx

3. This invention is to be (has been) disclosed outside Motorola: Yes/No xxx  
If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:

Typed: Steven Trine

Phone: 817-245-2572 Signature: *Steven Trine*

Date: Oct 30, 2000

ALL DISCLOSURES MUST BE COMPLETED AND ALL ADDITIONAL SHEETS MUST BE SIGNED & DATED BY ALL INVENTORS AND TWO WITNESSES

10/27/00

## WIRELESS INSTANT MESSAGING STRATEGIC PORTFOLIO DEVELOPMENT

MOTOROLA CONFIDENTIAL &amp; PROPRIETARY (when completed)

Page 2

**MOTOROLA**PORT  
WORTH

## Utility Patent Disclosure

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Shift: Status:

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**Dwight Smith**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

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Inventor:**xxx**

Last Name:

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First Name:

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Middle Name:

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Immediate Supervisor:

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Home Address: Street;

Location

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**xxx**

State;

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Zip;

**xxx**

Citizenship:

**xxx**

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**xxx.xxx.xxx**

Location

**xxxx**

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**xxxx**

MailStop:

**x**

Shift: Status:

Employee

**xxx**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

**WITNESS NAMES & SIGNATURES:**

The witnesses, in signing this form, attest to the fact that they understand the invention.

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

W. Garland Phillips

52358

W. Garland Phillips

10/27/00

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

Soren Thomson

52316

Soren Thomson

10/27/00

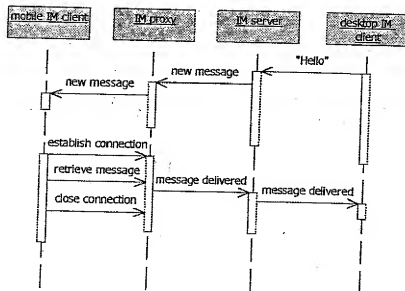
**MOTOROLA**

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# Utility Patent Disclosure

## Proposed Solution

In a mobile IM environment, a proxy registers with the IM server on behalf of the mobile IM client. The proxy provides the current presence information of the mobile client to other IM users. The proxy also notifies the mobile client when messages are available for download. In a circuit switched cellular network, the message retrieval would look something like this:



In a circuit switched cellular network, there is considerable delay in setting up a connection and it is cost prohibitive to maintain an open connection for the duration of the chat. To address these problems, the IM proxy could bundle the messages so the user only needs to establish a connection when there are multiple messages to be downloaded, or when a message has been queued for a certain amount of time. So we have two scenarios:

### Scenario 1

- The mobile user is in a chat session with several friends.
- The friends send three messages that are queued by the IM proxy.
- The friends immediately send five more messages.
- The IM proxy exceeded its limit of five messages so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

Inventor

Date

Inventor

Date

Inventor

Date

Signature

Witness

Witness

10/27/00

Date

10/27/00

Date

**MOTOROLA**

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WORTH

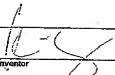
Utility Patent Disclosure

Scenario 2

- > The conversation is starting to die down.
- > The friends send three messages
- > After two minutes, no more messages arrive.
- > The proxy time limit is exceeded so it notifies the mobile user that messages are available
- > The mobile user establishes a connection and retrieves the messages

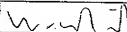
The number of messages to be queued prior to notification and the time limit for message storage would be configurable in the proxy. They would probably be provisioned on a per-user basis based on the cost and latency that the user is willing to incur.

The latency added by this approach would need to be indicated to the senders to set their expectations. This indication, likely a visual one, is being addressed in a separate disclosure.

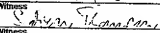
  
\_\_\_\_\_  
Inventor  
\_\_\_\_\_  
Date  
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10/27/00

Signature

  
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10/27/00

**MOTOROLA**Security Classification  
Motorola Confidential Proprietary  
(When Completed)

Page 1 of 5

# OF COPIES NEEDED  
AFTER A # IS ASSIGNED**PAGING  
PRODUCTS GROUP  
PATENT DISCLOSURE**

Rev. P 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

**INTELLECTUAL PROPERTY DEPT. USE ONLY**DISCLOSURE NO. PF 2463 NADATE 12-6-00

PATENT COMMITTEE ACTION

**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

1. Name of invention:  
Smart Bulk Download for IM
2. Documentation Date:  
this disclosure
3. Whom did you first tell about your invention? Name: Kevin Mowry Date: 11/29/2000
4. Is this disclosure being submitted as a Design disclosure? Yes ☐ No ☒
5. What problem is solved by this invention?  
Bulking up IM unacceptably slows down IM between a small number of participants
6. What is the closest known technology?  
PF02181NA Message bundling to optimize IM in circuit switched environment
7. What is this invention?  
The invention adds smarts to the IM Proxy/Server to only bundle IM messages when there is a high message rate and there are a large number of participants.

**THIS SECTION TO BE COMPLETED BY AN ENGINEERING OR PRODUCT MANAGER (or higher) ONLY**Product to be used in/on: (If a process, name the first product the process was/is to be used on.)  
IM infrastructure coupled to wireless infrastructureHas/Is/Will this product been/being/be offered for sale? Have products incorporating this invention been described, quoted, or demonstrated to a customer? Have orders been accepted for the product? Explain the circumstances.  
Not offered for sale yet.If so, when was/will the first offer for sale of a product incorporating this invention (be) made?  
Date: NAWhen is the estimated ship date? NA

When was/will the first disclosure outside of Motorola (be) made?

How will the disclosure be made (state title and date of publication, if any) and to whom?

Was a non-disclosure agreement signed? Yes ☐ Date: ☐ No ☒Engineering or Product Manager's Name (Type) R. BennettPhone: 817 245-2363

I attest to the accuracy of the above information.

Signature of Engineering or  
Product Manager  
(or higher): Date: 12/6/00



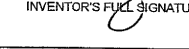
## PAGING PRODUCTS GROUP

## PATENT DISCLOSURE

PRIMARY INVENTOR:	Dorenbosch,	Jheroen	P	546 49 3308 / 10111727	Rich Bennett
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					EMPLOYEE STATUS
INVENTOR:	Mowry	Kevin	Curtis	10129073	Dwight Smith
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	STREET		CITY	STATE	ZIP
	USA NS504	52695	TX72	S147	E-MAIL ID P
	CITIZENSHIP	DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE
				MAIL STOP	SHIFT
					EMPLOYEE STATUS

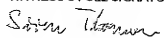
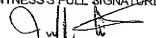
INVENTOR:	NA				
HOME ADDRESS:	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID	IMMEDIATE SUPVR.
	STREET		CITY	STATE	ZIP
					E-MAIL ID
	CITIZENSHIP	DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE
				MAIL STOP	SHIFT
					EMPLOYEE STATUS

## INVENTOR'S SIGNATURES:

INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE
	

## WITNESSES' NAMES AND SIGNATURES:

THE WITNESSES, IN SIGNING THIS FORM, ATTEST TO THE FACT THAT THEY UNDERSTAND THE INVENTION.

WITNESS'S FIRST/LAST NAME (TYPE)	PHONE	WITNESS'S FIRST/LAST NAME (TYPE)	PHONE
SOEREN THOMSEN	5-2316	Jeff Couts	52701
WITNESS'S FULL SIGNATURE	DATE	WITNESS'S FULL SIGNATURE	DATE
	12/5/00		12/6/00

**MOTOROLA**
 Security Classification  
 Motorola Confidential Proprietary  
 (When Completed)

**MUST BE ACCOMPANIED  
 BY A COMPLETED PATENT  
 DISCLOSURE FORM**

**PAGING  
 PRODUCTS GROUP**
**DESIGN DISCLOSURE APPENDIX**

REV. 1.0 01/2000 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

**The problem**

PF02181NA 'Message bundling to optimize IM in circuit switched environment' was combined with PF 2177, which was pursued. PF02181NA improves OTA efficiency by bundling downlink messages for IM. This bundling implies that often a message must be stored at the IM proxy/server and delayed to see if another message for the same mobile target will follow. This is particularly annoying when the number of participants in the conversation is two (Figure 1).

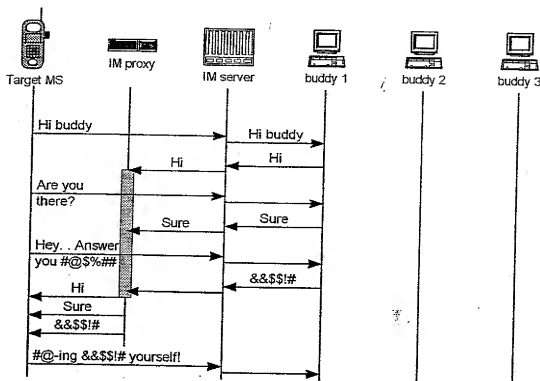


Figure 1. PF02181NA proposes to delay IM messages to a mobile device so that they can be bundled with later messages to the same target. This can be detrimental to a conversation between two parties.

What is needed is some smarts in the IM proxy/server to determine when bundling should be attempted.

Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>		
Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/5/00</u>
Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/6/00</u>

**MOTOROLA**
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 (When Completed)

**MUST BE ACCOMPANIED  
 BY A COMPLETED PATENT  
 DISCLOSURE FORM**

**PAGING -  
 PRODUCTS GROUP  
 DESIGN DISCLOSURE APPENDIX**

Rev. F 01/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

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DATE
PATENT COMMITTEE ACTION

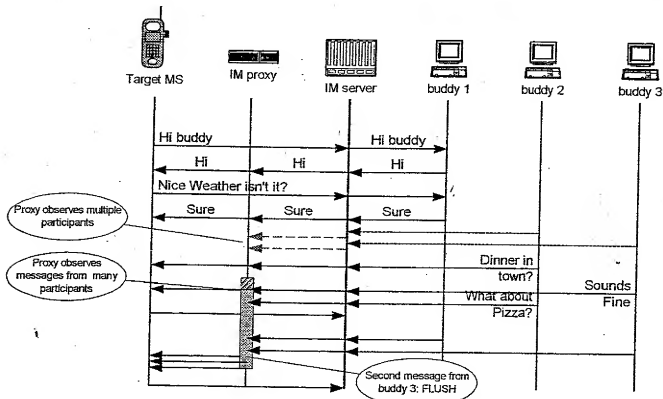
**The invention**

Figure 2. For the invention, the proxy monitors the number of participants, the message rate and the number of messages in the buffer from each participant to decide whether it will bundle or not and to decide on when to flush the buffer.

The invention is a method in the IM proxy/server that decides when to bundle IM messages for a mobile target.

The method uses several rules to start bundling:

1. Start bundling when more than K participants sent messages to the target within the last L seconds.  
 (Example K = 5, L = 120)

Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/5/00</u>
Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/6/00</u>

**MOTOROLA**
 Security Classification  
 Motorola Confidential Proprietary  
 (When Completed)

**MUST BE ACCOMPANIED  
 BY A COMPLETED PATENT  
 DISCLOSURE FORM**

**PAGING  
 PRODUCTS GROUP  
 DESIGN DISCLOSURE APPENDIX**

REV. F 01/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

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DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

2. Start bundling when more than M participants sent more than N messages within the last O seconds to the target.  
 (Example M=3, N=7, O=180)

The method further has rules on when to flush the buffer and forward the stored messages to the mobile target.

3. Send all stored messages to the mobile target when a participant for whom a message is stored sends a second message to the same target.
4. Flush the buffer when a predetermined number of messages is stored (PF01281NA only flushes after a predetermined time).
5. Flush when the total message size is over a threshold (A large message size would justify the associated overhead. One can flush, for example, when the stored messages fills the better part of an SMS message).
6. Flush the buffer sooner when the number of participants is lower.
7. Make the flush time depend on the load on the wireless system (light load -> early flush).
8. Make the flush time depend on the wishes of the user of the mobile target (more money, earlier flush).
9. Make the flush time depend on the wishes of the senders (more money, earlier flush).
10. Flush when the user obtains a data connection for other reasons.

The method further has rules on when to quit bundling (and flush the buffer if it contains messages):

11. Quit bundling when condition 1 and 2 are no longer true.
12. Quit bundling when the user obtains a data connection for other reasons.

User impact on bundling:

13. Quit bundling when the target indicates that it is not interested in bundling.
14. Start bundling when the user so indicates. Notify buddies that responses will be delayed.

Inventor: <u>[Signature]</u>	Date: <u>2/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/5/00</u>
Inventor: <u>[Signature]</u>	Date: <u>2/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/6/00</u>

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 09/855,385

Confirmation No.: 8937

Applicant(s): Dorenbosch, Jheroen P., et al. Examiner: Mehrpour, Naghmeh

Filed: May 15, 2001

Docket No.: PF02177NA

TC/A.U.: 2617

Customer No.: 20280

Title: INSTANT MESSAGE PROXY FOR CIRCUIT SWITCHED MOBILE  
ENVIRONMENT

---

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 C.F.R. § 1.131**

Sir:

The following Declaration and any attachments are to establish conception in the United States of claimed subject matter in the referenced patent application and diligence to the filing of the referenced patent application on May 15, 2001, from a date prior to the effective date of U.S. Patent Application Publication No. US2002/0147988A1 to Masahiro Nakano, filed in the United States on April 9, 2001, and relied upon by the Examiner to support rejections under 35 U.S.C. 103(a) in the Office Action dated July 11, 2006.

In support of this declaration, we, Jheroen P. Dorenbosch of Paradise, Texas, and Kevin C. Mowry of Irving, Texas, declare and sayeth the following:

That we conceived the claimed subject matter of the referenced patent application in the United States before April 9, 2001, which is prior to the effective date of United States Patent Publication No. US2002/0147988A1 (Nakano), in the course of employment by Motorola Inc., the assignee of the instant application by virtue of an assignment duly recorded on the Official record of the United States Patent & Trademark Office, REEL/FRAME 011815/0457.

That the claimed subject matters of the referenced patent application were the subjects of written invention disclosures prepared and executed after conception on October 24, 2000; October 27, 2000; and December 5, 2000; and that the invention disclosures were subsequently submitted to a Patent Committee of Motorola Inc., the assignee of record for consideration and assignment to a patent attorney for preparation and filing of a patent application.

That each of the dates redacted from the disclosure attached hereto is prior to the effective dates of United States Patent Publication No. US2002/0147988A1 (Nakano).

That on information and belief a patent application was prepared and filed, in due course upon, in the United States Patent Office on May 15, 2001, by or on behalf of Motorola Inc.

That all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

JHEROEN P. DORENBOSCH

DATE

STATE OF )

ss:

COUNTY OF )

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Jheroen P. Dorenbosch whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

My commission expires:

\_\_\_\_\_  
Notary Public Signature

\_\_\_\_\_  
Printed Name of Notary Public

  
Kevin C. Mowry

11/28/07  
DATE

STATE OF )

ss:

COUNTY OF )

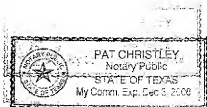
The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Kevin C. Mowry whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this 28<sup>th</sup> day of November, 2006.

My commission expires:

  
Notary Public Signature

Pat Christley  
Printed Name of Notary Public



**MOTOROLA**FORT  
WORTH

## Utility Patent Disclosure

UTILITY Disclosure For Patent  
Committee ReviewSubmitted Pursuant To  
Employment Agreement

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only	
Discl. #	
Discl. Date	PF 217717A
Committee Action	10-25-00

**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

1. Name of Invention: Store and forward mechanism for Instant Messaging
2. Documentation Date: Oct 24, 2000  
(Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?  
Name: xxx Date: xxx
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No NO  
If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)  
IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?
6. Identify related technology. (Attach additional sheets if necessary.)  
Email is the extreme case, in which clients log in and "pull" messages.
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.  
See attached.

**THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER**

1. Product invention is to be used on. (If a process, name the 1<sup>st</sup> product the process is to be used on.) n/a
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No NO If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be (has been) disclosed outside Motorola: Yes/No NO  
If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:  
Typed: xxx Steven E. Fine (817) 241-2572
- Phone: xxx Signature: *Steven E. Fine* Date: 10/24/2000

**MOTOROLA**FORD  
WORTH**Utility Patent Disclosure**

<b>Primary Inventor:</b>				Social	Commerce
<b>Mewyr</b>	<b>Kevin</b>	<b>Curtis</b>	<b>519-08-8038</b>	<b>10129073</b>	
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<b>9703 Windy Hollow Drive</b>		<b>Irving</b>	<b>TX</b>	<b>75063</b>	<b>USA</b>
Home Address: Street;		City;	State;	Zip;	Citizenship:
Location					
<b>NS504 817.245.2695</b>	<b>TX72</b>	<b>S147</b>	<b>A</b>	<b>Dwight Smith</b>	
Dept. #:	Office Phone #:	Code:	MailStop:	Shift:	Status:
			Employee		
			Immediate Supervisor:		

INVENTOR'S FULL SIGNATURE	DATE
<i>[Signature]</i>	10/24/00

<b>Inventor:</b>				Social	Commerce
<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX-XX-XXX</b>	<b>XXXXXXXX</b>	
Last Name:	First Name:	Middle Name:	Security #	ID #	
<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>
Home Address: Street;	Location	City;	State;	Zip;	Citizenship:
Employee					
<b>XXX</b>	<b>XXX.XXX.XXXX</b>	<b>XXXX</b>	<b>X</b>	<b>XXX</b>	<b>XXX</b>
Dept. #:	Office Phone #:	Code:	MailStop:	Shift:	Status:
			Employee		
			Immediate Supervisor:		

INVENTOR'S FULL SIGNATURE	DATE

<b>Inventor:</b>				Social	Commerce
<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX-XX-XXX</b>	<b>XXXXXXXX</b>	
Last Name:	First Name:	Middle Name:	Security #	ID #	
<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>
Home Address: Street;	Location	City;	State;	Zip;	Citizenship:
Employee					
<b>XXX</b>	<b>XXX.XXX.XXXX</b>	<b>XXXX</b>	<b>X</b>	<b>XXX</b>	<b>XXX</b>
Dept. #:	Office Phone #:	Code:	MailStop:	Shift:	Status:
			Employee		
			Immediate Supervisor:		

INVENTOR'S FULL SIGNATURE	DATE

**WITNESS NAMES & SIGNATURES:**

The witnesses, in signing this form, attest to the fact that they understand the invention.

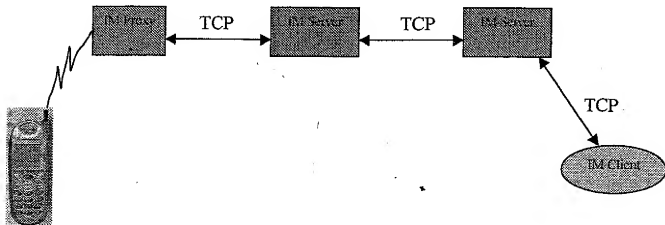
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
<i>W. Garland Phillips</i>	52388	<i>[Signature]</i>	10/24/00
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
<i>SCOTT THOMSEN</i>	5-2316	<i>[Signature]</i>	10/24/00

**MOTOROLA**FORT  
WORTH**Utility Patent Disclosure****Problem Description**

IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?

**Proposed Solution**

The IM Proxy registers with an IM server on behalf of a mobile client. It receives instant messages and sends them over the air to the mobile client. Instant messages sent from the mobile client go through the IM proxy to the recipient.



The IM Proxy maintains the client's availability status. That is, when the user starts the IM client, the proxy reflects the AVAILABLE status. When the user manually changes status, e.g. to OFFLINE, the proxy reflects that. The user's buddies use the client status to determine if the user can participate in a chat session.

The proxy will not know if the client is roaming or out of service, because the client will not have the opportunity to register a change in status with the proxy before dropping out of service. In this case, the proxy will only know the client is offline when an instant message comes in and the proxy tries to send that message to the mobile client.

Normal IM behavior would suggest that the message be dropped in this scenario, however the mobile client may simply be going in and out of service because the user is driving down the freeway. A preferred behavior would be for the proxy to resend the message a programmable number of times before dropping the message. After dropping a programmable number of messages, the proxy should automatically change the client status to OFFLINE so the user's buddies will know the user is no longer receiving messages.

The number of retries would likely be based on system latency. The number of dropped messages (used to determine an automatic status change) would probably be provisioned for each user, or class of users, based on network reliability, location, usage habits, etc.

*K. S.* 10/24/00  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_

Signatures

*[Signature]* 10/24/00  
 Witness \_\_\_\_\_ Date \_\_\_\_\_  
*[Signature]* 10/24/00  
 Witness \_\_\_\_\_ Date \_\_\_\_\_

**MOTOROLA**

FORT  
WORTH

**Utility Patent Disclosure**

UTILITY Disclosure For Patent  
Committee Review

Submitted Pursuant To  
Employment Agreement



Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only	
Disc. #	
Disc. Date	PF 218.1 NT
Committee Action	10-30-00

**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

1. Name of Invention: Message bundling to optimize IM in circuit switched environment
2. Documentation Date: Oct 27, 2000  
(Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?  
Name: Soeren Thomsen Date: Oct 26, 2000
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No No  
If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)  
In a circuit switched cellular network, the mobile IM client must establish a connection with the IM server (or proxy) to send and receive messages. It is cost prohibitive to maintain an open connection for the duration of the IM chat. A mechanism is needed to optimize message retrieval for a circuit switch network such that a connection is established only when messages are available for retrieval.
6. Identify related technology. (Attach additional sheets if necessary.)  
xxx
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.  
See attached.

**THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER**

1. Product invention is to be used on. (If a process, name the 1<sup>st</sup> product the process is to be used on.) xxx
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No xxx If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be (has been) disclosed outside Motorola: Yes/No xxx  
If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:  
Typed: Steven Trine

Phone: 817-245-2572 Signature: *Steven Trine*

Date: Oct. 30, 2000

10/27/00

# WIRELESS INSTANT MESSAGING STRATEGIC PORTFOLIO DEVELOPMENT

MOTOROLA CONFIDENTIAL &amp; PROPRIETARY (when completed)

Page 2

**MOTOROLA**FOR  
WORTH**Utility Patent Disclosure**Primary Inventor:**Mowry**

Last Name:

**Kevin**

First Name:

**Curtis**

Middle Name:

Social

**519088038**

Security #

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Citizenship:

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Location

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Code:

**S147**

MailStop:

**A Full**

Shift: Status:

Employee

**Dwight Smith**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

Inventor:**xxx**

Last Name:

**xxx**

First Name:

**xxx**

Middle Name:

Social

**xxx-xx-xxx**

Security #

Commerce

**xxxxxxxxx**

ID #

**xxx**

Home Address: Street;

**xxx**

City;

**xxx**

State;

**xxx**

Zip;

**xxx**

Citizenship:

**xxx**

Dept. #: Office Phone #:

**xxxx**

Code:

**xxxx**

MailStop:

**x**

Shift: Status:

Employee

**xxx**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

Inventor:**xxx**

Last Name:

**xxx**

First Name:

**xxx**

Middle Name:

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Security #

Commerce

**xxxxxxxxx**

ID #

**xxx**

Home Address: Street;

**xxx**

City;

**xxx**

State;

**xxx**

Zip;

**xxx**

Citizenship:

**xxx**

Dept. #: Office Phone #:

**xxxx**

Code:

**xxxx**

MailStop:

**x**

Shift: Status:

Employee

**xxx**

Immediate Supervisor:

INVENTOR'S FULL SIGNATURE

DATE

**WITNESS NAMES & SIGNATURES:****The witnesses, in signing this form, attest to the fact that they understand the invention.**

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

*W. Garland Phillips*

52385

*W. Garland Phillips*

10/27/00

WITNESS NAME (PRINTED or TYPED)

PHONE

WITNESS SIGNATURE

DATE

*Suzanne Thompson*

52316

*Suzanne Thompson*

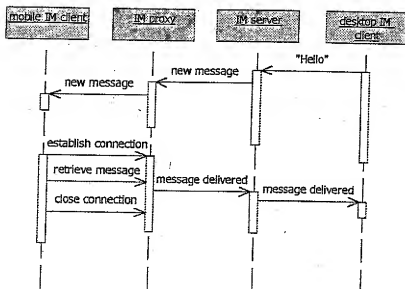
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# Utility Patent Disclosure

## Proposed Solution

In a mobile IM environment, a proxy registers with the IM server on behalf of the mobile IM client. The proxy provides the current presence information of the mobile client to other IM users. The proxy also notifies the mobile client when messages are available for download. In a circuit switched cellular network, the message retrieval would look something like this:



In a circuit switched cellular network, there is considerable delay in setting up a connection and it is cost prohibitive to maintain an open connection for the duration of the chat. To address these problems, the IM proxy could bundle the messages so the user only needs to establish a connection when there are multiple messages to be downloaded, or when a message has been queued for a certain amount of time. So we have two scenarios:

### Scenario 1

- The mobile user is in a chat session with several friends.
- The friends send three messages that are queued by the IM proxy.
- The friends immediately send five more messages.
- The IM proxy exceeded its limit of five messages so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

Inventor 16/00 Date 10/27/00  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_  
 Inventor \_\_\_\_\_ Date \_\_\_\_\_

Signature 16/00 Date 10/27/00  
 Witness 16/00 Date 10/27/00  
 Witness \_\_\_\_\_ Date \_\_\_\_\_

**MOTOROLA**

PORT  
WORTH

**Utility Patent Disclosure**

**Scenario 2**

- The conversation is starting to die down.
- The friends send three messages
- After two minutes, no more messages arrive.
- The proxy time limit is exceeded so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

The number of messages to be queued prior to notification and the time limit for message storage would be configurable in the proxy. They would probably be provisioned on a per-user basis based on the cost and latency that the user is willing to incur.

The latency added by this approach would need to be indicated to the senders to set their expectations. This indication, likely a visual one, is being addressed in a separate disclosure.

Inventor

Date

Inventor

Date

Inventor

Date

Signature

Witness

Witness

Date

Date

**MOTOROLA**Security Classification  
Motorola Confidential Proprietary  
(When Completed)

Page 1 of 5

# OF COPIES NEEDED  
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PRODUCTS GROUP  
PATENT DISCLOSURE**

Rev. P 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY

DISCLOSURE NO. PF 2863 NADATE 12-6-00

PATENT COMMITTEE ACTION

**THIS SECTION TO BE COMPLETED BY INVENTOR(S)**

- Name of invention:  
Smart Bulk Download for IM
- Documentation Date:  
this disclosure
- Whom did you first tell about your invention? Name: Kevin Mowry Date: 11/29/2000
- Is this disclosure being submitted as a Design disclosure? Yes ☐ No ☒
- What problem is solved by this invention?  
Bulking up IM unacceptably slows down IM between a small number of participants
- What is the closest known technology?  
PF02181NA Message bundling to optimize IM in circuit switched environment
- What is this invention?  
The invention adds smarts to the IM Proxy/Server to only bundle IM messages when there is a high message rate and there are a large number of participants.

**THIS SECTION TO BE COMPLETED BY AN ENGINEERING OR PRODUCT MANAGER (or higher) ONLY**Product to be used in/on: (If a process, name the first product the process was/is to be used on.)  
IM infrastructure coupled to wireless infrastructureHas/Is/Will this product been/being/be offered for sale? Have products incorporating this invention been described, quoted, or demonstrated to a customer? Have orders been accepted for the product? Explain the circumstances.)  
Not offered for sale yet.

If so, when was/will the first offer for sale of a product incorporating this invention (be) made?

Date: NAWhen is the estimated ship date? NA

When was/will the first disclosure outside of Motorola (be) made?

How will the disclosure be made (state title and date of publication, if any) and to whom?

Was a non-disclosure agreement signed? Yes ☐ Date: ☐ No ☒Engineering or Product Manager's Name (Type) R. BennettPhone: 817 245-2363

I attest to the accuracy of the above information.



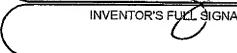
Signature of Engineering or  
Product Manager  
(or higher):Date: 12/6/00

**PAGING PRODUCTS GROUP****PATENT DISCLOSURE**

PRIMARY INVENTOR:	Dorenbosch,	Jheroen	P	546 49 3308 / 10111727	Rich Bennett
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	STREET		CITY	STATE	ZIP
	NL BC996	(817) 245 2364	TX74	S 258	E-MAIL ID P
	CITIZENSHIP	DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE
					MAIL SHIFT
					STOP
					EMPLOYEE STATUS
INVENTOR:	Mowry	Kevin	Curtis	10129073	Dwight Smith
HOME ADDRESS:	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID	IMMEDIATE SUPVR.
	9703 Windy Hollow Drive		Irving	TX 75063	
	STREET		CITY	STATE	ZIP
	USA NS504	52695	TX72	S147	E-MAIL ID P
	CITIZENSHIP	DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE
					MAIL SHIFT
					STOP
					EMPLOYEE STATUS

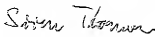
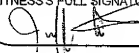
INVENTOR:	NA				
HOME ADDRESS:	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID	IMMEDIATE SUPVR.
	STREET		CITY	STATE	ZIP
					E-MAIL ID
	CITIZENSHIP	DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE
					MAIL SHIFT
					STOP
					EMPLOYEE STATUS

**INVENTOR'S SIGNATURES:**

INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE
	

**WITNESSES' NAMES AND SIGNATURES:**

THE WITNESSES, IN SIGNING THIS FORM, ATTEST TO THE FACT THAT THEY UNDERSTAND THE INVENTION.

WITNESS'S FIRST/LAST NAME (TYPE)	PHONE	WITNESS'S FIRST/LAST NAME (TYPE)	PHONE
SOEREN THORSEN	5-2316	Jeff Coats	52701
WITNESS'S FULL SIGNATURE	DATE	WITNESS'S FULL SIGNATURE	DATE
	12/5/00		12/6/00

**MOTOROLA**
 Security Classification  
 Motorola Confidential Proprietary  
 (When Completed)

**MUST BE ACCOMPANIED  
 BY A COMPLETED PATENT  
 DISCLOSURE FORM**

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 PRODUCTS GROUP**
**DESIGN DISCLOSURE APPENDIX**

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**The problem**

PF02181NA 'Message bundling to optimize IM in circuit switched environment' was combined with PF 2177, which was pursued. PF02181NA improves OTA efficiency by bundling downlink messages for IM. This bundling implies that often a message must be stored at the IM proxy/server and delayed to see if another message for the same mobile target will follow. This is particularly annoying when the number of participants in the conversation is two (Figure 1).

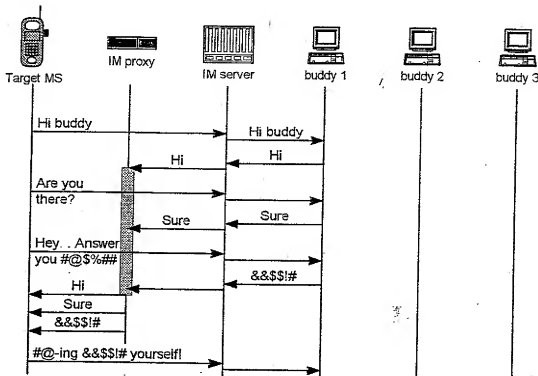


Figure 1. PF02181NA proposes to delay IM messages to a mobile device so that they can be bundled with later messages to the same target. This can be detrimental to a conversation between two parties.

What is needed is some smarts in the IM proxy/server to determine when bundling should be attempted.

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Inventor: <u>[Signature]</u>	Date: <u>12/5/00</u>	Witness: <u>[Signature]</u>	Date: <u>12/6/00</u>

**MOTOROLA**
 Security Classification  
 Motorola Confidential Proprietary  
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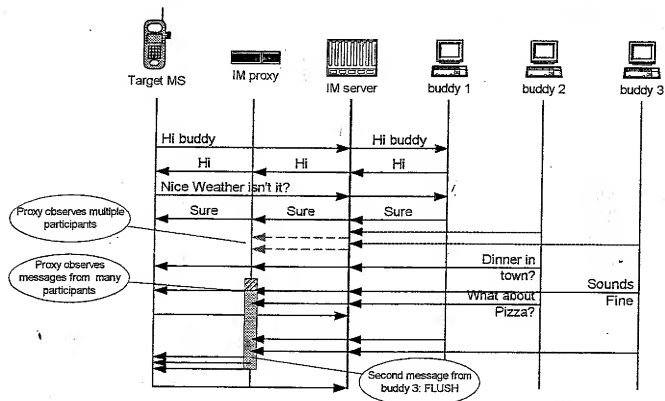
**The invention**

Figure 2. For the invention, the proxy monitors the number of participants, the message rate and the number of messages in the buffer from each participant to decide whether it will bundle or not and to decide on when to flush the buffer.

The invention is a method in the IM proxy/server that decides when to bundle IM messages for a mobile target.

The method uses several rules to start bundling:

1. Start bundling when more than K participants sent messages to the target within the last L seconds.  
 (Example K = 5, L = 120)

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- Start bundling when more than M participants sent more than N messages within the last O seconds to the target.  
(Example M=3, N=7, O=180)

The method further has rules on when to flush the buffer and forward the stored messages to the mobile target.

- Send all stored messages to the mobile target when a participant for whom a message is stored sends a second message to the same target.
- Flush the buffer when a predetermined number of messages is stored (PF01281NA only flushes after a predetermined time).
- Flush when the total message size is over a threshold (A large message size would justify the associated overhead. One can flush, for example, when the stored messages fills the better part of an SMS message).
- Flush the buffer sooner when the number of participants is lower.
- Make the flush time depend on the load on the wireless system (light load -> early flush).
- Make the flush time depend on the wishes of the user of the mobile target (more money, earlier flush).
- Make the flush time depend on the wishes of the senders (more money, earlier flush).
- Flush when the user obtains a data connection for other reasons.

The method further has rules on when to quit bundling (and flush the buffer if it contains messages):

- Quit bundling when condition 1 and 2 are no longer true.
- Quit bundling when the user obtains a data connection for other reasons.

User impact on bundling:

- Quit bundling when the target indicates that it is not interested in bundling.
- Start bundling when the user so indicates. Notify buddies that responses will be delayed.

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